agricultural marketing

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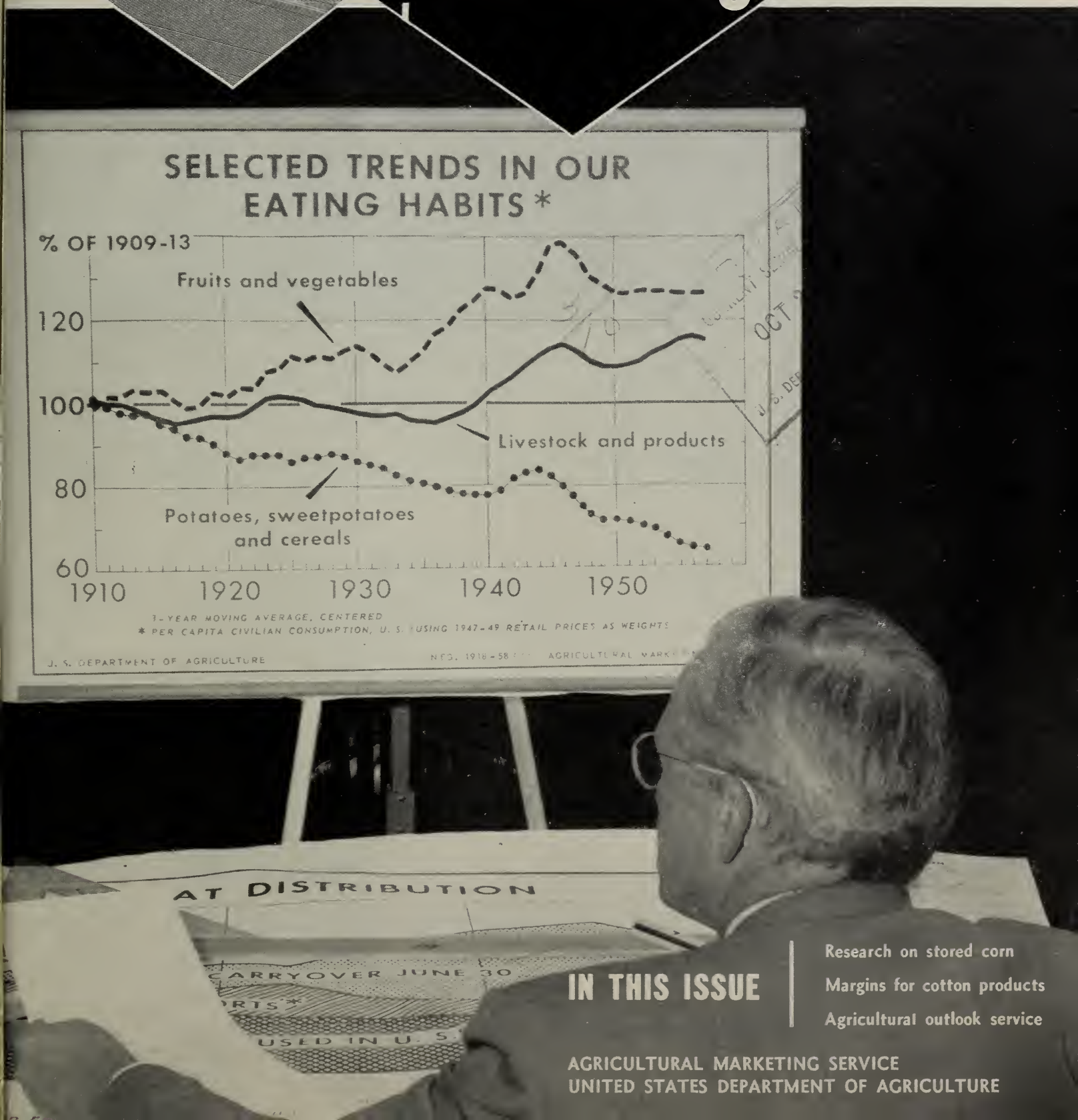

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AGRICULTURAL MARKETING SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

agricultural marketing

Volume 3, Number 10

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October 1958

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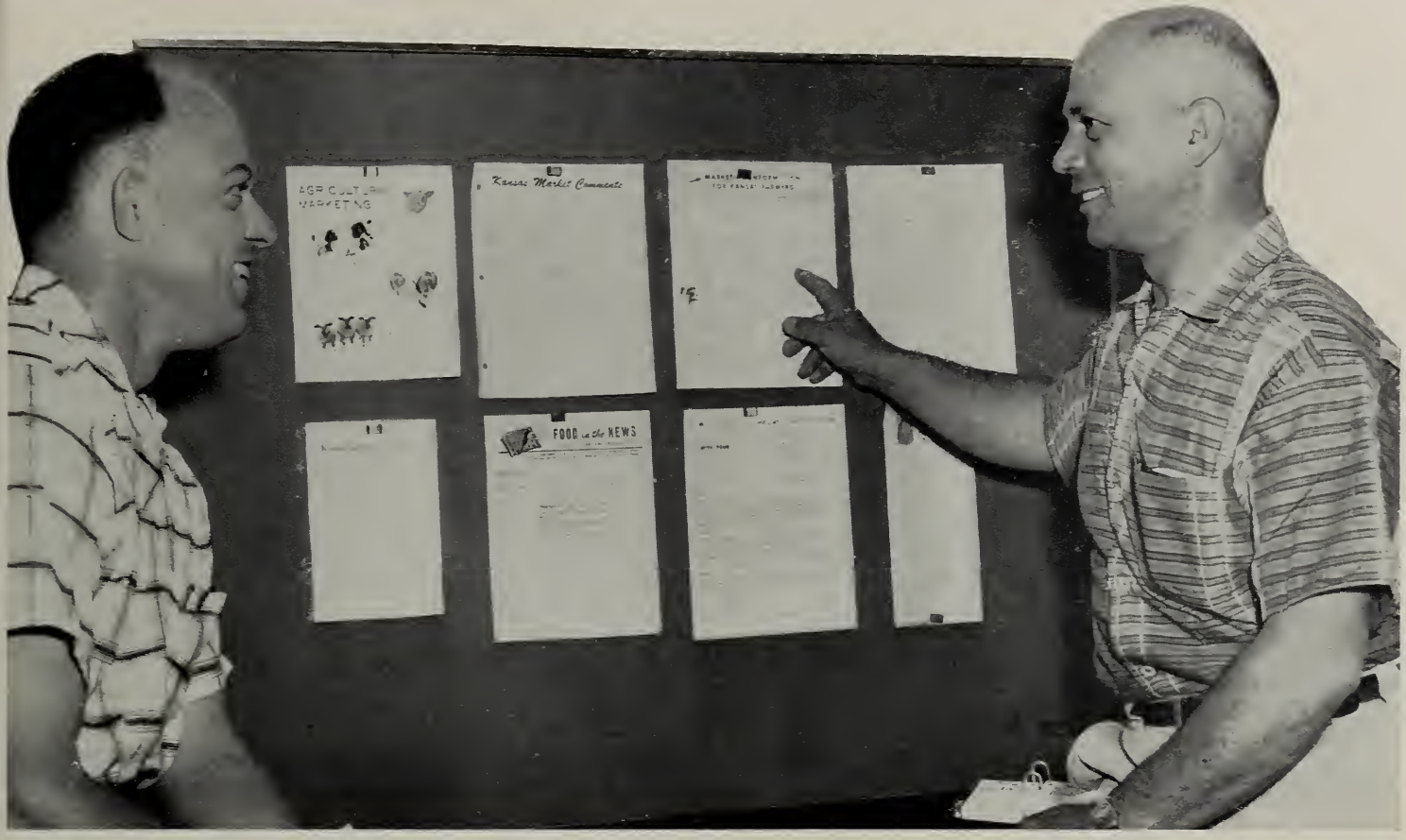

State Extension Services make excellent use of the outlook material. They add local information, adapt the reports to local needs, and make them available to farmers and others who are interested in the farm situation and outlook in the State. Above, R. Wayne Robinson, extension specialist in Kansas (left), and Wilton Thomas, Dickinson County agent, look over some of the publications available to county agents to keep farmers informed of changes.

The Agricultural Outlook Service

by WAYNE V. DEXTER

FOR THE 35th consecutive year, farmers, processors, and marketing men are looking forward to the economic predictions of the National Agricultural Outlook Conference.

Scheduled for November 17 through 20 in Washington, D. C., the meeting will bring economists of the Land-Grant Colleges and Universities in the 48 States, Alaska, Hawaii, and Puerto Rico together with officials from USDA and other government and nongovernment groups.

These agricultural experts will thoroughly analyze the economic situation of our Nation's agriculture and forecast probable economic conditions for the coming year. They will also make specific predictions for each of the major farm commodities.

This information is assembled as an aid to farmers in adjusting their operations to the current economic situation. It also serves to give marketing men some idea of what to expect in the coming year.

The Outlook Conference opens each year's National Outlook Program. Outlook itself is a year-round activity of the Agricultural Marketing Service in Washington, D. C., and the Extension Services of most States.

In Washington, a staff of trained economists and statisticians are employed full time to develop and interpret agricultural statistics. In the States, Extension Services and the Agricultural Colleges and Universities use this material as the basis for programs of economic education.

The core of the National Outlook Program is a series of regularly published Situation reports which provide a continuous appraisal and reappraisal of agriculture's economic prospects. Included are the various farm commodities, demand for farm products, food consumption, farm income, costs, finances, marketing, and the farm real estate market.

Key report in this series is the Demand and Price Situation. This report analyzes the farm supply situation and the impact of changing economic conditions in the Nation and in world markets on the overall demand for the products of United States' farmers.

The analysis draws not only on the statistics collected by the Department of Agriculture, but also on those from the Department of Labor, Department of Commerce, and other agencies, private

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The author is Secretary of the Outlook and Situation Board.

and governmental. The conclusions of the Demand and Price Situation provide the overall framework for analyzing the outlook for the individual farm products.

The bulk of the Situation reports is prepared in the Agricultural Economics Division of Agricultural Marketing Service. One of the reports originates in the Marketing Research Division of AMS, three in the Farm Economics Research Division of the Agricultural Research Service, and two in the Food and Materials Requirements Division of the Commodity Stabilization Service. A Situation report dealing with foreign agriculture and trade is prepared by the Foreign Agricultural Service.

Situation reports typically include a thorough analysis of the current situation, together with an appraisal of most probable future trends. The assumptions on which forecasts rest are clearly stated or implied.

Most outlook statements look ahead a year or less. From time to time, however, the Department takes a longer look into the future—5, 10, or even 25 years. These long-term projections usually are presented in special publications.

Forecasts are made to let other people know what the experts in the Department think the facts indicate. Their main purpose is to present information in such a way that farmers and others involved in agricultural marketing and production are able to do a better job of making their own forecasts.

All statements about the future are, of course, statements of probabilities or most likely alternatives. They are, however, based on solid facts of the past and present and a thorough knowledge of trends.

Before any Situation report is published, it must be passed by the Outlook and Situation Board. This is to assure the highest possible degree of technical accuracy in the reports.

The Outlook and Situation Board is made up of panels of economists drawn from the various agencies of the Department of Agriculture. Different panels of experts deal with different commodities.

For instance, the panel for the Wheat Situation is composed of wheat experts from the various Divisions of the Agricultural Marketing Service, the Agricultural Research Service, the Commodity Stabilization Service, the Foreign Agricultural Service, and the Federal Extension Service.

These specialists carefully examine each report before it goes into print. If they find any technical inaccuracies or if they disagree with the analysis, they point these facts out. Then, if agreeable to the entire panel, a change is made in the final report.

Thus, a manuscript which bears the approval of the Outlook and Situation Board contains the Department's most reliable information and analysis. It reflects the thinking of top advisors in the field.

Since Situation reports are written mainly for use by agricultural economists, their information reaches the farmer and marketing man in many ways. State Extension Services make excellent use of this material. They add local information, adapt the reports to local needs, and make them available to farmers and others who are interested in the farm situation and outlook in the State.

For general use of those who want a brief, readable summary of the highlights of the outlook, a 2-page leaflet, the Agricultural Outlook Digest, is published monthly.

The Agricultural Outlook Chart book, issued annually at the time of the Outlook Conference, presents outlook information in chart form with a minimum of text. Special reports dealing with more complex research problems also are issued from time to time.

In the States, local farmer meetings, press releases and other printed materials, movies, radio, and television programs tell the story of the agricultural situation and outlook.

Information and analyses developed by the Outlook Service also crop up in many magazine and newspaper articles, radio and TV shows concerning the economic situation of farmers and their prospects for the future.

Thus, through all the many media of mass communications, the agricultural economic situation and outlook is brought to the attention of those who need this information. Together with crop reports and market news, the Outlook Service provides a complete economic and statistical service.

PIGGYBACK TRAILERS FOR FRESH PRODUCE

Piggyback shipments eliminate at least one loading and unloading operation. New reduced truck-rail rates make this type service even more attractive to growers and shippers of fresh fruits and vegetables. Loaded and ready to roll, this truck stands out sharply in front of Chicago skyline. In less than 24 hours, it will arrive in New Orleans, La.

Truck trailers, hauled "piggyback" on railroad flat cars, are bringing fruits and vegetables to market at reduced transportation rates.

But to successfully take advantage of this newest method of transportation, growers and shippers must be careful how they load the trailers. Solid loads usually do not cool well, and the temperature in the center sometimes actually rises.

Agricultural Marketing Service plant pathologist Howard B. Johnson of Harlingen, Tex., recently studied load patterns of "piggyback" trailers. He found that solid loading (without air spaces between the stacks of containers) wasn't too practical. Although the heavier loads took advantage of lower transportation charges, they did not allow effective cooling.

Six test shipments were made by AMS. Included were a trailerload each of carrots in a solid load, grapefruit in 1/2-box cartons in a solid load, grapefruit in 1/2-box cartons in a channeled load, onions in 50-pound mesh bags in a solid load, tomatoes in 60-pound wirebound crates in a solid load, and tomatoes in 60-pound wirebound crates in a channeled load. The channeled loads provided space between stacks for the movement of cool air.

In 2 of the 4 solid loads, the temperature of the produce in the middle and top layers actually rose slightly during transit, even though the shipments were refrigerated. In the other 2 solid loads, there was slow or uneven cooling.

One of the two channeled loads, which was only semi-open to circulation of refrigerated air, cooled fairly well; the other channeled load, fully open to air circulation, provided effective cooling of the entire load.

From these tests, the researchers concluded that solid loading of fruits and vegetables in truck-rail trailers probably will not provide effective refrigeration. A possible exception may be for large commodities, such as cabbage or melons, packed in well-ventilated, rigid containers.

Flat cars used in piggyback hauling are specially equipped to anchor trailers firmly in place during trip to market.

Water used in processing poultry must be approved before plant can qualify for inspection service.

Poultry Inspection Deadline Nears

by HERMON I. MILLER

THE POULTRY industry soon will join the meat industry in offering consumers the assurance of Federal inspection on all of its products processed in plants producing for interstate commerce.

The job of readying poultry processing plants for inspection service is coming along well, according to officials of the Agricultural Marketing Service. However, they want to remind processors that there is very little time left before the Poultry Products Inspection Act becomes fully effective.

The law requires Federal inspection for wholesomeness after January 1, 1959, for all poultry and poultry products merchandised or moved across State lines.

To qualify for the service, a processing plant must meet certain specifications for facilities, equipment, operating procedure, and labeling.

Requirements are similar to those set up under the voluntary USDA inspection program which has been in operation for the past 30 years. For the most part, processors who have used the voluntary service have had no trouble qualifying for compulsory inspection.

The first step, of course, is to file an application. Forms are available from the Poultry Division of the Agricultural Marketing Service, the agency which administers the inspection program.

Before service can be installed, the processor must have the blueprints of his plant and premises approved; his water supply certified as potable; and all labels to be used on products processed in his plant okayed. In addition, only approved chemical compounds may be used.

A final survey of the processing plant by a representative of the inspection service is necessary, too, before inspection can be started.

In order to expedite installation and operation of the inspection service, the Poultry Division has set up special sections to handle label and formula approvals, pathological problems encountered in inspection, and regulatory work in connection with the law. It also has developed an extensive training program so that inspectors will be available as plants qualify for the service.

Processors who need any information or advice about poultry inspection should contact their nearest area poultry inspection supervisor. From these offices, or from the Poultry Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C., a processor may obtain copies of the regulations governing inspection of poultry and poultry products as well as a number of helpful pamphlets.

As of the 1st of September, 279 plants had qualified for and were receiving the inspection service. Four hundred and two more had applications pending and should be receiving service soon. It is estimated that possibly 75 to 100 other plants still must apply for service if they are to continue shipping poultry in interstate commerce.

The Poultry Inspection Service stands ready to help them qualify and to install inspection as soon as the requirements are met.

The processing plant layout, premises, and equipment must meet certain requirements before poultry inspection can be begun. This plant has been approved and is now operating under new law.

The author is Director of the Poultry Division, Agricultural Marketing Service.

THE ROSIN STANDARDS STORY

by VICTOR E. GROTLISCH

WHEREVER rosin is inspected and graded, small glass standards are used to check the color of the natural rosin to establish the grade.

These are 7/8-inch cubes of colored glass which range from pale yellow to dark amber. Twelve of these cubes make up a "set" of official standards, with each cube representing an official grade—X, WW, WG, N, M, K, I, H, G, F, E, and D.

Of inestimable value, these standards are the result of years of painstaking research by USDA rosin specialists. They represent an almost perfect duplication of rosin colors and are in themselves absolutely uniform.

To make up the standards, special melts of U. S. Corning and German Jena glass were chosen. These particular glass melts were then ground and pitch-polished to a precise thickness and edge-ground to exactly 20.4 mm. square.

A layer of crystal clear glass was then added to make the sample exactly 20 mm. thick. To join these three pieces of glass together—the crystal, the U. S. and the German glass—a special cement had to be used. Pale Canada balsam proved the only material suitable.

One hundred and seven sets of the rosin standards were made according to the specifications of the U. S. Department of Agriculture. Today, the Agricultural Marketing Service, which handles rosin standardization work, owns 95 of these sets. The others have been destroyed through fire and loss.

Unfortunately, these standards cannot be replaced. The particular melt of German Jena glass that went into their composition has been depleted. If more rosin standards are necessary, the tedious job of testing and selecting would have to be begun anew.

The search for rosin standards has been a long and complicated one. Even before the Civil War, the rosin industry was seeking a set of representative samples on which to base its grading system. The first set of standard samples was prepared in 1850 by Hiram F. Smith, a New York naval stores inspector. They were hand-cut, 1-inch cubes of natural rosin representing each of the grades then in use.

Natural samples, however, presented several problems. It was hard to make each set uniform, and the samples themselves lacked permanence. Nonetheless, for many years no better method was developed, and natural rosin standards continued to be used by the industry.

Shortly before World War I, the former Bureau of Chemistry of the U. S. Department of Agriculture developed rosin standards which were made from Lovibond glass. In 1914 these were accepted by the industry, and three years later they became the official standards for grading rosin.

The color composition of the Lovibond components, however, was slightly different from that of the natural rosin. This difference was particularly apparent against the varying conditions of light encountered out-of-doors, where most grading is done. For example, rosins which exactly matched these glass standards when held against a grey sky did not match them against a blue sky.

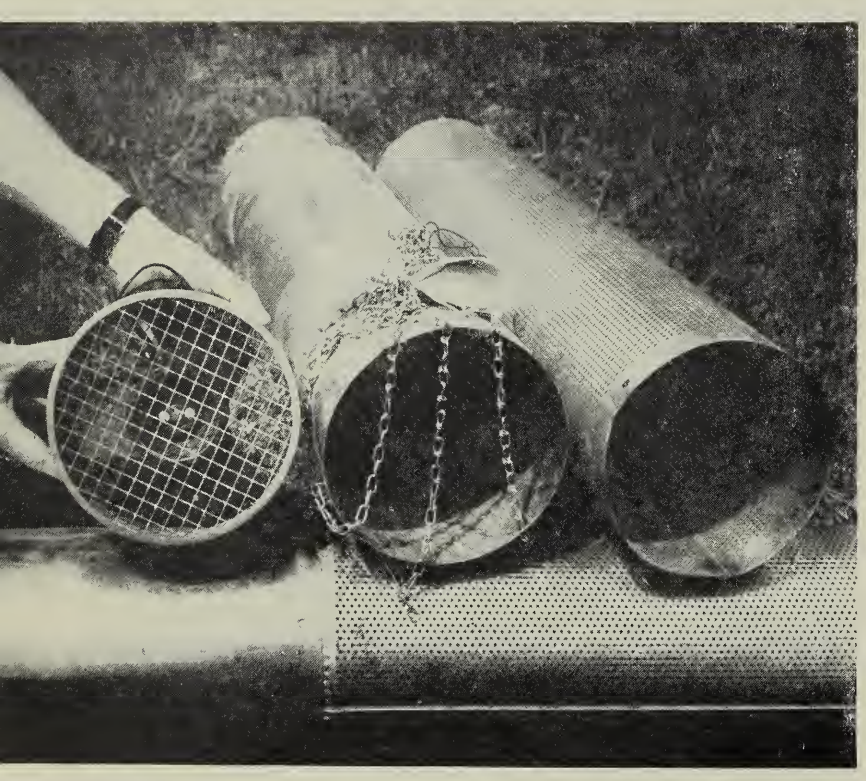
So, the search for more suitable colored glass standards continued. USDA rosin specialists now based their research on spectral transmission measurements. Curves for various glass combinations were checked against the curves representing natural rosin. Hundreds of samples were checked—of varying thicknesses and colors, and in various combinations.

Finally, the U. S.-German glass melts were decided upon as the best possible combination. These glass standards, which have been in use since 1936, serve as the basis for all buying and selling of rosin in this country and in most foreign countries.

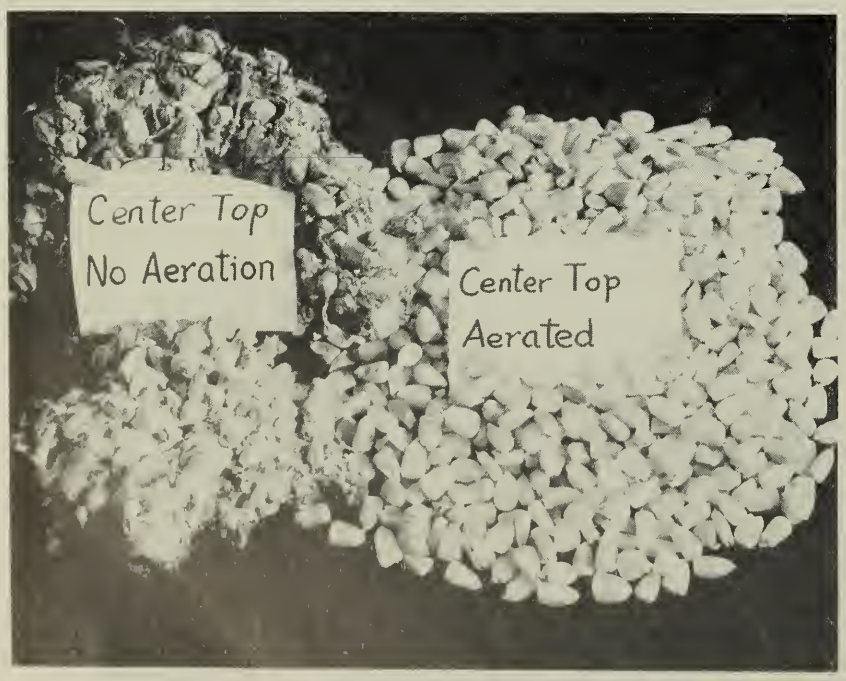
Sidney R. Snider, Assistant Chief of the Naval Stores Branch, AMS, compares block of natural rosin with matching standard representing the Water White grade. At left are other colored glass standards representing 11 other grades.

The author is Chief of the Naval Stores Branch, Tobacco Division, AMS.

STORING CORN FOR THE LONG HAUL



Vertical duct with electric fan at top provides satisfactory means of aeration.



These samples of corn are from adjoining bins. Aeration made the difference. When no air moved through the corn, moisture accumulated, mold developed.

IN A FIELD near Watseka, Ill., stand 210 metal bins, each filled with 3,000 bushels of shelled corn. Here, AMS agricultural engineers and entomologists are seeking the answers to questions concerning storage temperatures, moisture, insects, and diseases in corn.

This search for better storage methods was begun at the request of the Commodity Credit Corporation, which now has hundreds of millions of bushels of corn in storage. To protect this investment, CCC asked Agricultural Marketing Service to conduct research in long-term storage problems.

An important aspect of this work has centered around aeration experiments. Agricultural engineers have found that stored grain can be effectively aerated with a small electric fan located at the top of a vertical air duct. With this equipment, the temperature in the grain is held down, and moisture and mold are controlled.

Insect infestation is also being studied by entomologists, who introduce grain insects into certain bins to study their pattern of infestation, eating habits, and means of control.

Insect infestation is always a problem, but rarely are insects delibe
job of entomologist James Quinlan. He rears grain insects, then

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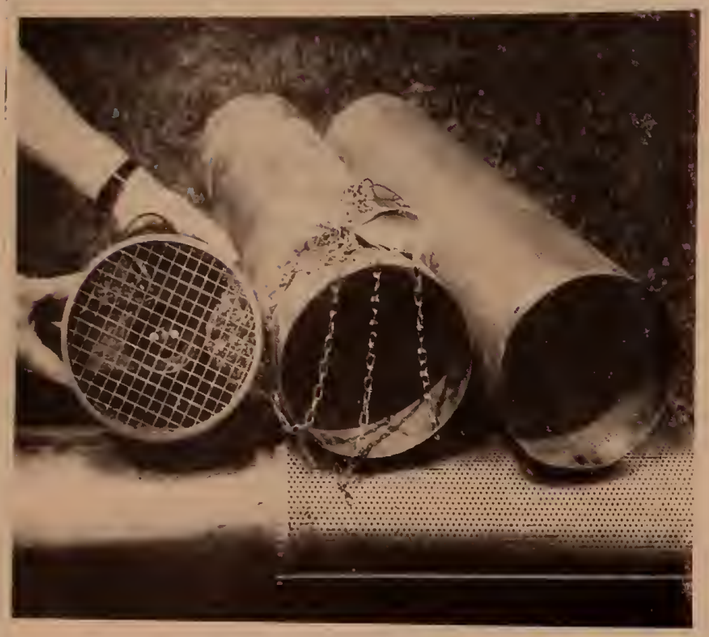

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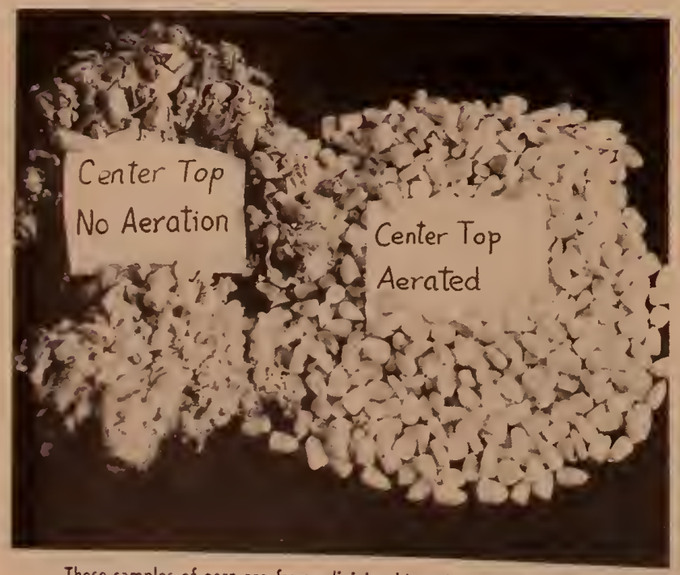
These metal storage bins—210 of them—provide laboratory for AMS scientists who are studying the various factors affecting keeping qualities of corn.



These samples of corn are from adjoining bins. Aeration made the difference. When no air moved through the corn, moisture accumulated, mold developed.

Insect infestation is always a problem, but rarely are insects deliberately in the storage. Yet that's the job of entomologist James Quinlan. He rears grain insects, then "p them in certain bins at Watseka.

Research personnel took temperature of the stored corn with this temperature meter hitched to thermocouples.

An operator reads the temperatures, one after another, for a number of positions in each of the storage bins.

Maintaining Cabbage Quality

CABBAGE KEEPS better, after 6 weeks, if stored at 32° F. than at either 38° or 45°. At each of these three temperatures, however, polyethylene liners prolong storage life. Cabbage in lined containers also retains its fresh, green color longer than that in unlined containers. And, if the liners are not perforated or have no more than eight ¼-inch perforations, trimming losses are cut down.

These findings were reported to the U. S. Navy as some of the more important results of a study made on cabbage by Agricultural Marketing Service scientist Chester S. Parsons. It is part of a study AMS is making for the Navy on the maximum storage life of vegetables often eaten raw.

The two factors that helped most to preserve the quality of stored cabbage were low temperatures and crate liners. Used either independently or together, these items held down decay and discoloration.

For instance, about 80 percent of the cabbage stored in unlined crates at 32° remained edible after 8 weeks, while only 60 percent of that stored at 45° could be eaten.

In these unlined crates, the cabbages lost 11.7 to 13.7 percent of their weight —even at a high relative humidity. A loss of about 6 percent causes wilting and seriously affects the attractiveness of the vegetable.

Cabbage stored in polyethylene liners, on the other hand, suffered very little shrinkage. At the same temperatures and humidity, cabbage in lined containers lost less than 1 percent of its weight. This cabbage also retained its fresh, green color much longer than that in unlined containers.

Tests indicated that the use of polyethylene liners helped maintain cabbage quality at all the experimental temperatures—32°, 38°, and 45° F. Some ventilation of the liners, however, was recommended.

In making the tests, AMS research personnel used 8 lots of northern-grown cabbage and 6 lots of southern cabbage. Only fresh heads, free of disease and insect injury, and of good color were included. All were of the round-headed variety.

Testing ran from the middle of 1954 to late 1957. It included cabbage packed in three different types of containers: Wirebound crates or wooden apple boxes with nonperforated polyethylene liners, crates with perforated liners, and unlined crates.

The liners were 30 by 36 inches and 2 mils thick. Part of the perforated liners contained eight ¼-inch holes and others had 16 holes of the same size. Liners were either heat-sealed or tied shut.

Testing was planned especially to meet the conditions and problems of the Navy. No tests have, as yet, been made to determine the usefulness of polyethylene for commercially stored cabbage which is usually held in bulk.

USE OF FATS AND OILS IN PREPARED ANIMAL FEEDS

Producers of animal and vegetable fats and oils are finding a new and important outlet in the mixed feed industry.

In 1956, about 324 million pounds of fats and oils went into prepared animal feeds. AMS economists estimate the 1957 consumption figure was even larger (probably around 420 million pounds) with a continued increase in 1958.

A survey showed that about a third of the processors included fats and oils in their feed mixes. This third produced three fourths of the year's feed output.

Large-scale processors offer the best market for inedible fats and oils. Mills manufacturing 50,000 tons or more of mixed feed annually used 75 percent of all the fats and oils added to prepared feeds in 1956.

Major consuming areas were in the East North Central and the South and Middle Atlantic regions.

Consumption of tallow was highest, followed by grease, other fats and oils, and soapstock and foots.

FARM-RETAIL SPREAD FOR COTTON PRODUCTS

by KATHRYN PARR

When a shopper buys a child's dress, the cotton farmer gets only 5 cents of her retail dollar.

FOR EVERY DOLLAR the housewife spends on cotton products, the farmer averages about a 15-cent return.

On some items, he gets more; on others, less. It depends on how much processing goes into the manufactured item.

If the product requires a lot of styling and workmanship, the farmer's share of the marketing margin is relatively low. On a child's dress, for example, he'll only get about 5 cents of each retail dollar. On a bath towel, however, his return would be considerably higher—about 25 cents on the dollar.

This wide variation in the farmer's share of the retail price of various cotton products showed up in a recent Agricultural Marketing Service study of 25 moderately priced cotton items.

Although not representative of all cotton products, these items showed the general pattern of prices and margins. Included were 19 clothing items, 2 pieces of cotton yard goods, and 4 cotton home furnishing items.

For all these manufactured cotton products, the retail price—and, therefore, the farmer's share—depended more on styling and workmanship than on the quantity of cotton used.

Although the same quantity of cotton may go into a $3.95 housedress as a $17.95 street dress, the cotton farmer doesn't realize the same percentage of the retail price for the two items. The cost of designing and manufacturing the street dress takes a larger share of the retail price. So, as the price of the dress increases, the farmer's share decreases.

This same relationship between the retail price and the farmer's return also held true for the other cotton products included in the AMS study. For example, the farmer received 31 cents of each dollar spent on sheets in 1957. But for each dollar spent on work shirts, the cotton farmer got only 15 cents. And his return was even less for business shirts. This more highly styled and finished product brought him only 7 cents on the dollar.

Bath towels require little processing, and on items such as this the cotton farmer's share of the retail price is high. He can expect to get about 25 cents of each dollar spent on these towels.

The cost of combing the yarn, weaving and finishing the broadcloth, and manufacturing and selling a business shirt accounts for a large portion of the retail price. Manufacturing and selling costs for sheets, on the other hand, make up much less of the retail value of the finished product. Sheets can be finished in the mills and sold directly to the retailers. Thus, the farmer's share is more for sheets than for most other cotton items.

As far as the cotton farmer is concerned, this sliding scale of returns on finished cotton products is nothing new. Neither is his average per-dollar return.

Since about 1947, prices and spreads for cotton have remained fairly stable. In 1957, the retail cost, farm value, and spread for the 25 cotton products studied by AMS averaged about the same as 10 years earlier.

A more detailed account of the price trends for cotton products and the farm to retail spreads may be found in a marketing research report soon to be published by AMS.

The author is an agricultural economist in the Marketing Research Division of AMS.

Storage Conditions Affect Grade of Cotton

by DOROTHY NICKERSON and JOSEPHINE J. TOMASZEWSKI

AMS tests at Beltsville, Md., and Experiment, Ga., showed cotton held its color best at 50° F. and 50 percent relative humidity.

THE DOLLAR VALUE of a bale of cotton can be seriously affected if the cotton changes color while in storage.

For many years, producers and marketing men have taken cuts in price because their cotton deepened in color and therefore decreased in value.

How this change in color can be lessened or eliminated and what causes it in the first place are being studied by the Cotton Division of the Agricultural Marketing Service in connection with their work on storage of official grade standards. Technologists have been testing storage conditions—different temperatures and different amounts of humidity—to see how they affect the color of raw cotton.

These tests showed that cotton held its color best when stored at 50° F. and 50 percent relative humidity.

Test results further indicate that refrigeration alone will not prevent color changes occurring in cotton during storage. Storage under 50° temperatures accompanied by controls that keep humidity reasonably low should succeed in holding color changes to a satisfactory minimum.

However, where it is not possible to control temperature, a control of humidity alone should reduce the degree of color change that might otherwise take place.

Generally, high-grade cotton undergoes a greater change in color than cotton of a lower grade. However, Spotted and Tinged grades show about the same amount of discoloration as White grades.

AMS tests were made at Beltsville, Md., and Experiment, Ga. Unfortunately, the only available storage space was in rooms where other tests were being conducted with fruits and vegetables. The unusual introduction of penicillium mold from the fruits and vegetables also affected the color change in the cotton.

Cotton used in the tests came from four different cotton-growing regions—the South Central, the Southeast, the West, and the Southwest. Of the 24 USDA grades of upland cotton now in effect, 11 of the White and Tinged grades were represented in the study. Four Spotted grades also were included.

Storage temperatures were held at 14 different points, ranging from 0° to 100° F. Humidity was held at 50 percent and 85 to 90 percent.

At the beginning of the test period, in May of 1956, all of the cotton samples were measured for color. Researchers made preliminary color measurements on a few samples after 3 months' storage, on a few more after 6 months. All samples were measured after 9 months and again at the end of 1 and 2 years. A final color measurement will be made at the end of the 3-year storage period.

Little or no color change occurred in a 1-year period with storage temperatures held at 0° and 22° F. But when the temperature ranged from 32° through 38°, 40°, and 45° F., the cotton darkened due to the presence of mold in the uncontrolled high humidity of the storage bins. At 60° F., there was some yellowing, but this was overshadowed by the darkening caused by the mold.

At the end of 9 months, it was necessary to discard some of the samples held at the 60° temperature because of the wet and moldy conditions. However, even in this condition a color change occurred in the higher grades. This change was less noticeable in the lower grades of cotton.

At 85 degrees and high relative humidity, the color changed even after 3 months' storage. The White grades yellowed enough to be classed as Spotted and the upper grades even turned to Tinged with a darkening as well as yellowing. The Spotted and Tinged samples both darkened and yellowed.

With a storage temperature of 70° F. and a humidity of 50 percent, there was noticeable yellowing, especially in the better grades of cotton. A very great change occurred at 85 percent relative humidity, both in yellowing and in darkening of color.

At 100° F. and a humidity of less than 50 percent, noticeable yellowing occurred during the first 6 months. This, too, has continued to the present. At less than 90 percent humidity, the color change was greater and occurred more rapidly.

How these color changes can affect the value of a bale of cotton can best be illustrated by taking a look at the 1956-57 prices for the various grades. That season, Good Middling 1-1/32-inch cotton sold for $176 a bale; Good Middling Spotted for $153. If storage conditions changed the color of a bale of cotton enough to drop the grade of Good Middling to Good Middling Spotted, the producer or any other owner would lose $23 on each bale.

Were the cotton to change even further—to Good Middling Tinged or Yellow Stained, its value would again be reduced. Good Middling Tinged brought only $129 a bale; Yellow Stained, $115.

A copy of the full report may be obtained from the authors.

Dorothy Nickerson is Head of the Standardization Section, Cotton Division, AMS. Josephine J. Tomaszewski is a color technologist in that section.

Erected by the Chicago Port Authority, these twin elevators add 13 million bushels to the grain storage capacity of the Chicago area. Both elevators can load grain into or out of ships, barges, rail cars or trucks. At right, "leg" from elevator extends into hold of ship to unload rye from Canada.

CHICAGO'S WELCOME TO THE ST. LAWRENCE SEAWAY

Like many other cities on the shores of the Great Lakes, Chicago plans to become a seaport when the St. Lawrence Seaway is completed. As a freight transfer point between ocean-going vessels and trains, trucks, or barges, Chicago will play a major role in the marketing of many farm commodities. Already many private firms have built additional elevators along Lake Calumet in anticipation of increased water movement of grain out of Chicago.

AMS researchers take cross-country trip to check transit temperatures of . . .

. . . CALIFORNIA LETTUCE

At 8:50 on the night of August 6, 1957, a freight train pulled out of Salinas, Calif. On board were AMS marketing researchers W. R. Barger, J. K. Stewart, and M. J. Ceponis. They were starting an unusual trip to the New York City market during which they'd keep an eye on 11 test cars of lettuce. Helping them were five other researchers—O. A. Durrant and L. V. Anderson representing the railroads, G. A. Peters and J. Nardonne from the fruit and vegetable industry, and R. F. Kasmire from the University of California.

The group arrived in New York 8 days and about 3,000 miles later with a great deal of information on the effect of various shipping procedures on the quality of Western lettuce.

The test cars, nine ice-bunker cars and two mechanically refrigerated cars, had been checked periodically. Data were gathered on the effect of salting practices, size of load, pattern of loading, type of container, and type of railway equipment on transit temperatures.

Three salting practices were compared: Adding 2 percent of the bunker capacity at initial icing and 3 percent of the amount of ice supplied at each reicing, and two heavier salting practices. Standard refrigeration and the 2 and 3 percent salting provided adequate protection for well precooled lettuce shipped during warm weather.

Researchers, however, emphasize the importance of good precooling. Heavy salting used to offset insufficient precooling increases the danger of freezing the lettuce in certain parts of the load without materially reducing the temperature in warmer positions.

In two ice-bunker cars in which thermostats were installed to control the electric fans, the danger of excessive cooling was reduced. Although lettuce temperatures in three cars with comparable icing services—two with thermostats and one without—were satisfactory, temperatures dropped closer to the freezing point of lettuce in the car without a thermostat.

Two 50-foot mechanically refrigerated cars also were tested. Both were of the envelope design with cold air circulating through the walls, ceiling, and floor, without entering the compartment. One car had forced air circulation within the load compartment; the other did not.

The average temperature of the loads were 36° in the car with fans and 39° in the car without fans. In an ice-bunker car shipped under 2 and 3 percent salt, the average temperature was 35° F.

Relative humidity of the car averaged 73 percent in an ice-bunker car receiving 3 and 5 percent salt, and 90 percent in the mechanically refrigerated car with fans. No appreciable wilting occurred in either car.

After arriving in New York, the lettuce was examined to determine the effect of transit temperatures on quality. Differences in general appearance, marginal browning, decay, and russet spotting of the lettuce could not be detected. However, the lettuce shipped at lower temperatures had a longer shelf life than that shipped above 40° F.

Eating Habits of Insects in Stored Peanuts

Insects that feed on stored peanuts make the most of their opportunities. AMS entomologists report that these insects eat only loose kernels and peanuts in cracked pods during the first 12 months of a storage period. Not until the second or third year do insects bore their way into solid peanut shells.

Since there are several hundred million pounds of peanuts in storage—and 20 to 25 percent of these are loose or in cracked pods—these insects have been eating well. And, as more and more peanuts go into storage, more and more insect infestation is occurring.

That's why marketing researchers in the Biological Sciences Branch of AMS have been checking the eating habits of insects in stored peanuts. They want to know just what species attack the nuts, how abundant they are, and what damage they do.

Research has been conducted at the AMS Stored-Product Insects Laboratory at Tifton, Ga., and at other laboratories in the State. Small experimental bins, 500-bushel metal bins, and commercial storages were used.

Regardless of the type of storage, a number of species of insects were found feeding on the peanuts. The five most abundant were the Indian-meal moth, the ephestia moths, and the corn sap, saw-toothed grain, and flour beetles. Also present in some storages were cigarette beetles, rice weevils, flat grain beetles, and coffee bean weevils.

For many years, entomologists have believed that infestation took place after the peanuts were in storage. AMS experiments, however, revealed this wasn't necessarily true. Infestation and damage often were underway when the peanuts arrived at the warehouse.

Researchers noted infestation almost immediately after the peanuts had been dug. They also found insects in peanut sheller cleanings that were taken back to the farm for hog feed. And, even as late as the next spring, they found insects in stacks of peanut hay in the fields and in both baled and bulk hay in barns.

This infestation was the same for both picker-harvested and combined peanuts. The insects didn't seem to care which method of harvesting was used.

They did, however, show a preference for peanuts that had been cured a long time. More insects were found in nuts that had been cured 4 to 6 weeks than in those with shorter curing periods.

But the real key to which nuts would or would not be eaten was the condition of the shells. During the first season's storage, peanut-eating insects dined almost exclusively on loose kernels or peanuts in cracked pods. Not until much later did they have to resort to boring their own way to dinner.

Now that the pattern of insect infestation in stored peanuts has been established, marketing researchers are looking for more effective control methods. Entomologists are currently making tests with a variety of protective sprays and dusts—insecticides which, they hope, will discourage the peanut-eating beetles, moths, and weevils.

One method used to record insect population in storage sheds is to leave a pan of water on top of a pile of peanuts so as to trap as many insects as possible. Here, entomologist checks results.

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OFFICIAL BUSINESS

Selling More Potatoes

by WILL M. SIMMONS

Ask the average housewife what she looks for when shopping for groceries and she'll probably tell you something like this—

She wants to buy foods as nearly ready to serve as possible. She wants them to be tasty, attractive in appearance, and low in calories. She is also interested in their price. These comments are worth pondering, particularly by those in the potato industry. For the past few decades, the selling job for potatoes hasn't been as effective as it could be.

True, potatoes make up almost a fourth of the dollar value, and nearly half the tonnage, of fresh vegetables moving through retail stores. They still are by far the most important item in the fresh vegetable diet of Americans. But the fact remains—per person consumption in recent years has dropped far below that of 15 or 20 years ago.

A full explanation of the decline in potato consumption is not possible here, but a few factors stand out.

For one thing, studies of the Agricultural Economics Division of AMS show that as the buying power of Americans has trended upward, consumers have shifted toward more expensive foods and toward more processing, packaging, and distribution services.

Growth of the modern supermarket and one-stop shopping also has influenced consumption trends. The bulk of our foods is now sold through large organizations which demand large quantities of uniform, high-quality products the year-round. Any product sold in these stores must compete with 3,000 or so other food items. To sell themselves, potatoes must be attractive and well presented.

These days, potatoes are facing a lot more competition from other fresh vegetables. Improved refrigeration and transportation equipment have increased the assortment of vegetables now available. Also, processed foods are being offered in greater quantities and varieties than ever before.

Continuing shifts in our shopping and eating habits are anticipated as income continues to increase, as further advances are made in product development and processing technology, and as our country becomes more nutrition and health conscious. This means that the potato industry will be hard put to hold its own in the struggle for shelf space and the consumers' food dollar.

But, here are some things the potato industry can do to strengthen the marketing position of its product.

Dispel the false idea that potatoes are fattening. A medium-size potato has no more calories than a large apple, orange, or banana.

Emphasize the important nutrients in potatoes—ascorbic acid, niacin, thiamine, and iron.

Give the consumer what she wants. Studies indicate consumers look for fresh potatoes of medium size, with smooth skin, clean surface, and few eyes. In other words, they buy largely on the basis of size and appearance. Proper packaging and display can reinforce the attractiveness of the product. Many shoppers prefer to buy potatoes in a package rather than from bulk displays. Generally, the housewife prefers a package that will permit her to see the contents.

Continue to offer more processing and built-in services. The brightest spot in the potato consumption picture in recent years has been the rapid increase in the use of processed items—potato chips, frozen products, dehydrated products, pre-peeling.

The importance of processing is emphasized by data from a household food consumption survey made in 1955. Purchases of raw potatoes tend to decline as income rises above the $3,000 to $4,000 level. But, at the same time, consumption of processed potatoes increases sharply. This indicates that future increases in income may result in rising consumption of processed potato products.

Convenience, quality, attractiveness, nutritional education, and built-in services—these are the things that appeal to Mrs. Consumer. Combine them with vigorous advertising and promotion and the whole potato industry, from farmer to retailer, should benefit.

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